



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

*No. 3 September, 2001*

## HoltraChem Manufacturing Site

THE US ENVIRONMENTAL PROTECTION AGENCY IS WORKING WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND MALLINCKRODT INC. TO INVESTIGATE AND CLEAN UP MERCURY POLLUTION AT THE HOLTRACHEM FACILITY IN ORRINGTON, ME. THIS UPDATE PROVIDES ANSWERS TO BASIC QUESTIONS ABOUT MERCURY: THE OCCURENCE OF MERCURY IN THE ENVIRONMENT; THE KNOWN HEALTH EFFECTS OF EXPOSURE TO MERCURY; HOW TO PROTECT YOURSELF FROM EXPOSURE; AND ACTIONS TO TAKE IF YOU FEEL YOU HAVE BEEN EXPOSED.

### Introduction

The main potential exposure to mercury released from HoltraChem and other sources is through the consumption of fish. We encourage you to observe the existing State of Maine advisories on limiting the consumption of fish. The advisories are posted on the Maine Bureau of Health website at:

<http://www.state.me.us/dhs/bohete/fca.htm>

Copies of the advisories for fresh and salt water fish are enclosed.

### For More Information Call:

#### US EPA

(toll free) 888-372-7341 & ask for:  
Ernest Waterman, Project Manager  
(ext. 81369)

Angela Bonarrigo, Community Relations  
(ext. 81034)

#### Maine DEP

207-287-2651

Stacy Ladner, Project Manager

### What is Mercury?

Mercury is a naturally occurring heavy metal. At normal temperatures it is a shiny, silver-white, odorless liquid. If heated, it becomes a colorless, odorless gas. It can be found in the environment in various forms:

#### 1. *As a naturally occurring heavy metal.*

This is the form in which mercury is found in fever thermometers and in many automatic switches such as home thermostats and car trunk lights. It is also the form in which mercury was used in the manufacturing processes at the HoltraChem facility. Exposure to mercury metal occurs primarily through inhaling mercury vapors.

Monitoring work previously conducted by HoltraChem and now continued by Earth Tech, as well as separate investigations by Maine DEP indicate that a threat of exposure to metallic mercury or mercury vapor releases from HoltraChem only exist within the manufacturing

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area on the HoltraChem facility. Residents adjacent to the site are not being exposed to elevated levels of mercury vapors.

## *2. As an inorganic compound in combination with other elements such as chlorine, sulfur, or oxygen.*

Mercuric chloride (mercury combined with chlorine) and mercuric sulfide (mercury combined with sulfur) were present in the spent brine that came out of the manufacturing process at HoltraChem. This is believed to be the principal form of mercury in the five landfills on site and the principal form in which mercury was discharged from the site into the Penobscot River. Mercury in this form does not vaporize, but it is soluble and can be converted to methyl mercury (read below).

## *3. As methyl mercury.*

This transformation occurs in environments without oxygen (such as the sediments in river and lake bottoms). Elemental mercury emitted to the atmosphere from multiple sources throughout the country is deposited on watersheds throughout the northeast and washed into lake bottom sediments where there is no oxygen. Once in the sediments, elemental mercury, in combination with carbon, undergoes a transformation into methyl mercury. Mercury released from the HoltraChem facility into the sediments of the Penobscot River undergoes this transformation. Methyl mercury accumulates and concentrates in fish tissue as small fish are eaten by larger ones. Almost all mercury exposure in humans is through fish consumption.

## **What are the Health Effects of Mercury Exposure?**

The nervous system is very sensitive to all forms of mercury. Methyl mercury and elemental metal vapors are more harmful than other forms, because mercury in these forms reach the brain. Exposure to high levels of metallic, organic (methyl), or inorganic mercury can permanently dam-

age the brain or kidneys in adults and young children. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.

Very young children and developing fetuses are more sensitive to mercury than adults. Mercury in the mother's body passes to the unborn child and can pass to a nursing infant through breast milk. However, the benefits of breast feeding may be greater than the possible adverse effects of mercury in breast milk.

Mercury's harmful effects that may be passed from the mother to the developing fetus include brain damage, mental retardation, and lack of coordination, blindness, seizures, and speaking impairments. Children poisoned by mercury may develop problems of the nervous and digestive systems and kidney damage.

Short-term exposure to high levels of metallic mercury vapors may cause lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes and eye irritation. There is very little evidence that mercury causes cancer.

Mercury is excreted from the body. If mercury exposure is stopped the amounts of mercury in the body will decrease over time.

## **What Can I Do to Limit My Exposure to Mercury?**

✓ *Respect the no trespassing signs posted along the HoltraChem facility and Penobscot River.*

The manufacturing area at HoltraChem; groundwater beneath the site; small streams draining the manufacturing area; and some of the sediments in the southern cove, all contain elevated levels of mercury. Residents should respect the no trespassing signs posted along the HoltraChem property boundary and along the shoreline of the Penobscot

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River. Under current conditions the mercury contamination on-site at HoltraChem does not pose a threat to local residents unless they come on-site. On-site workers operate under a health and safety plan and their exposures are within limits established by the Occupational Safety and Health Administration (OSHA).

✓ *Follow the fish consumption advisory.*

Most people are exposed to mercury from eating fish that contains high levels of methyl mercury. Fish is an important component to a healthy diet and there are many fish that have little or no mercury in them.

Freshwater fish that contain less mercury include brook trout and landlocked salmon. Ocean fish that contain less mercury include striped bass, blue fish, tuna and all shellfish.

The Maine Bureau of Health advises that pregnant women, nursing mothers, women who may become pregnant, and children less than 8 years old should not eat fish from lakes and ponds in the state except 1 meal per month of brook trout or landlocked salmon and should not eat swordfish, shark, tilefish, or king mackerel. Fish consumption limits and recommendations for adults and children are detailed in the attached literature on **fish advisories** in the State of Maine.

The U.S. Food and Drug Administration (FDA) also advises women of childbearing age, pregnant women or nursing mothers, not to eat any swordfish, shark, king mackerel or tile fish. The FDA advises these women to select a variety of other kinds of fish -- including shellfish, canned fish, smaller ocean fish or farm-raised fish -- and that these women can safely eat two servings per week of cooked fish. A typical serving size of fish is from three to 6 ounces.

## **How do I dispose of mercury containing products or clean up a broken thermometer in my home?**

Carefully handle and dispose of products that contain mercury, such as thermometers and fluorescent light bulbs through a household hazardous waste collection program.

If there is a broken thermometer, ventilate the room to the outside and close the room off from the rest of the house. Use fans for a minimum of one hour to speed the ventilation. Do not vacuum up the spill. Vacuuming cause the mercury to vaporize and increases your exposure. Clean up the beads of metallic mercury by carefully rolling them onto a heavy sheet of paper or sucking it up with an eye dropper. After picking up the metallic mercury, put it into a ziploc bag or airtight container.

The sheet of paper or eye dropper should also be bagged and disposed of according to guidance provided by your local health department or environmental officials. To learn more about Orrington's guidelines, contact Dexter Johnson, Orrington Town Manager, at 207-825-3340.

If a larger amount is spilled, leave the area and contact your local health department and fire authorities. Do not simply throw it away, but instead seek professional guidance. If a large amount of metallic mercury is found (for example, a jar), make sure that the metallic mercury is in an airtight container and call your local officials for instructions on how to safely dispose of it.

### ***Can I be Tested for Mercury?***

There are tests available to measure recent mercury exposure levels in the body. Mercury is excreted from the body through urine and hair. Blood or urine samples are used to test for the exposure to metallic mercury and to the inorganic forms of mercury. Mercury in whole blood or in hair is measured to determine exposure to methyl mercury. Your doctor can take samples and send them to a laboratory for analysis.